

A black and white photograph of a woman with short dark hair, smiling and looking through the viewfinder of a Bell & Howell Zoom Reflex 8mm movie camera. The camera is a boxy, vintage-style model with a prominent lens and a viewfinder on top. The woman is holding the camera with both hands, and the background is a simple, light-colored wall.

Bell & Howell[®]

ZOOM REFLEX

AUTOLOAD[™]

8mm

MOVIE

CAMERA

MODEL 315 PZ

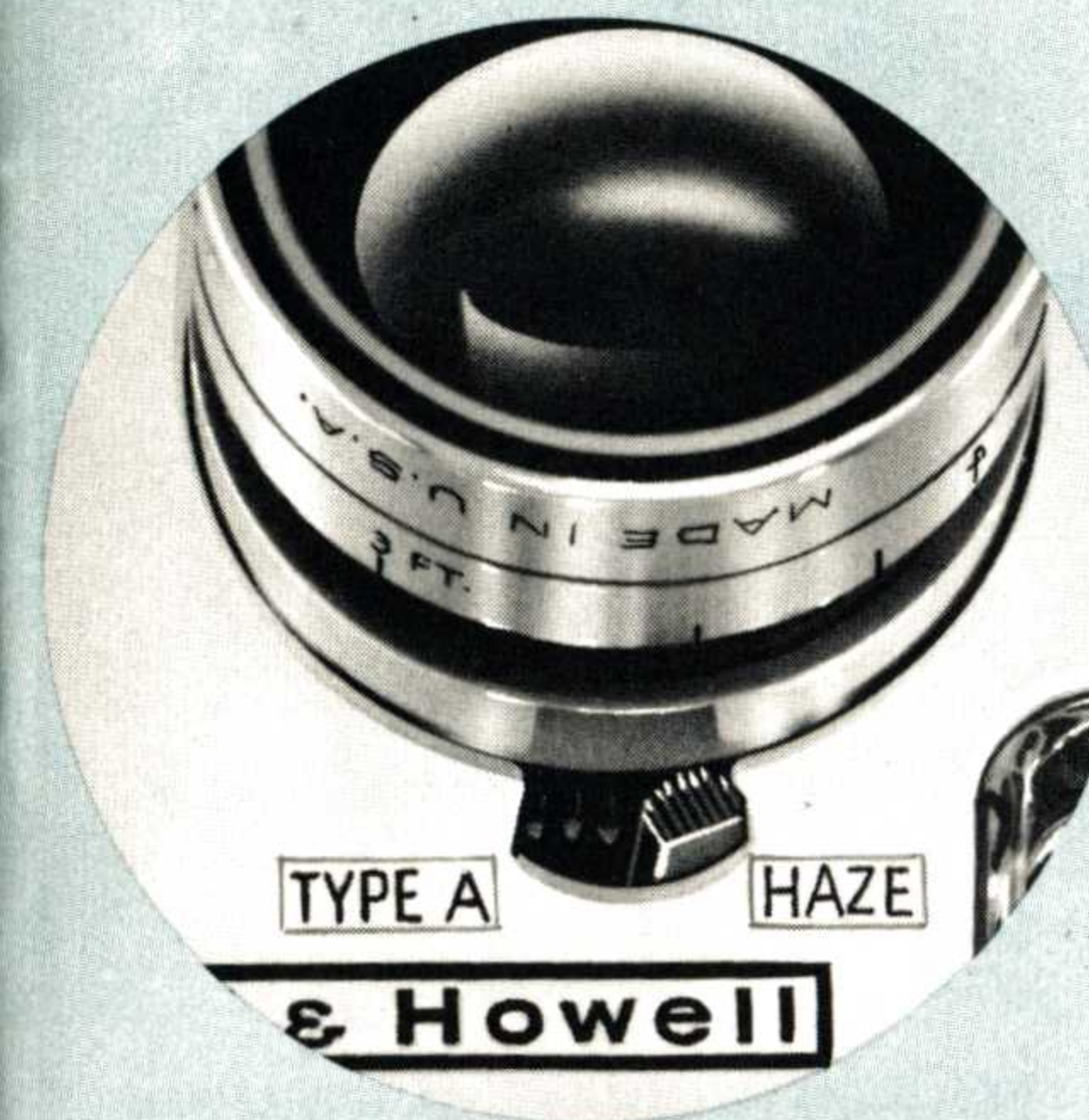
WELCOME TO BELL & HOWELL OWNERSHIP

OPEN THIS FLAP OF YOUR INSTRUCTION BOOKLET

Keep the flap open as you read through the instructions that follow. This will give you a quick reference to all the working parts of your Zoom Reflex AUTOLOAD camera.

Familiarity with these names before operating your camera will assure complete success with your first roll of film.

5. SET FILTERS



When using Indoor, "Type A", films with natural, rather than artificial light, set the Filter Lever to "Type A". Use "Haze" all other times. Page 4.

6. FOCUS

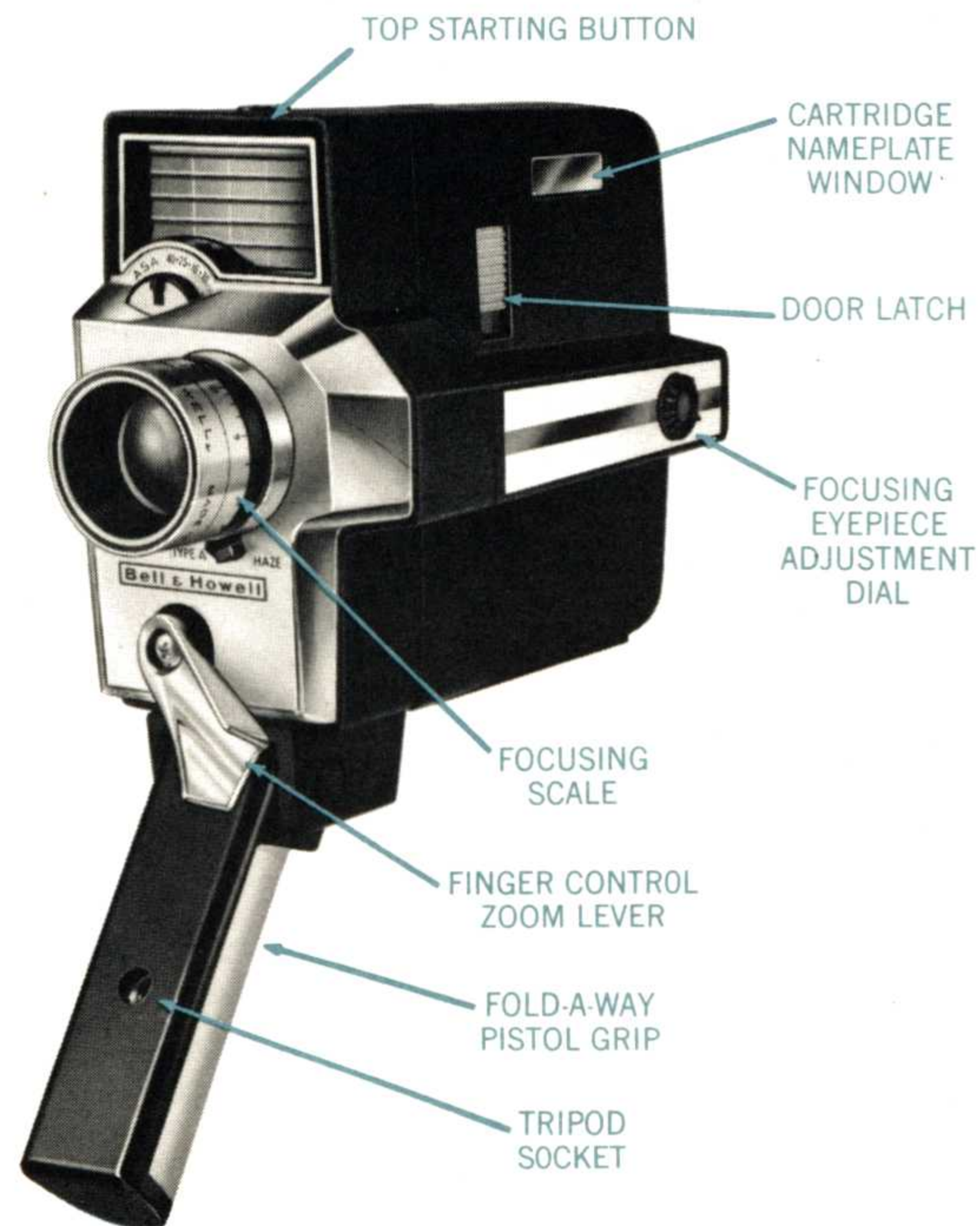
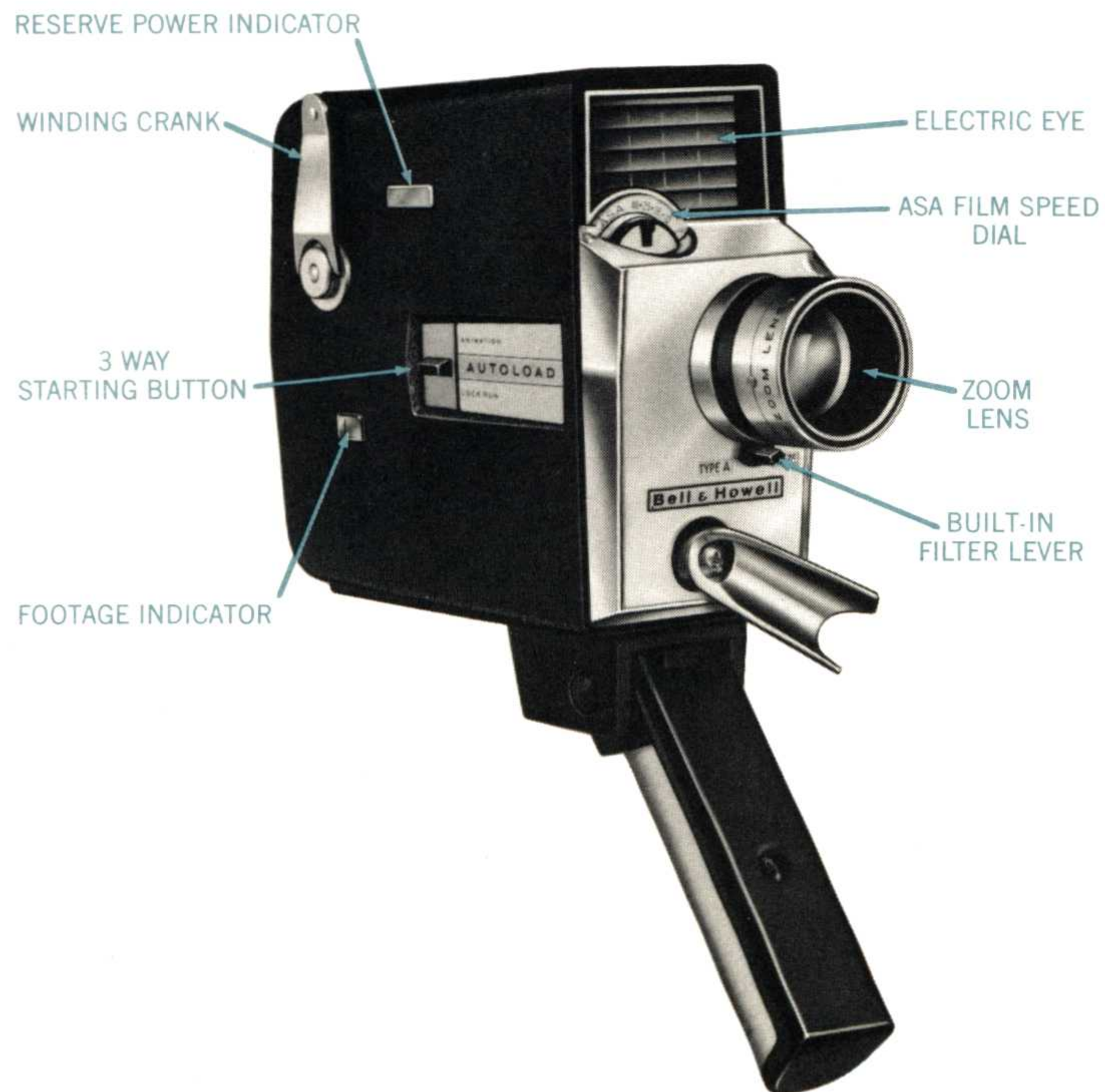


Most of your movies will be taken with the lens set at the "Universal Focus Position." However, you should focus the lens for close-ups and critical sharpness. Page 5.

7. SIGHT AND SHOOT

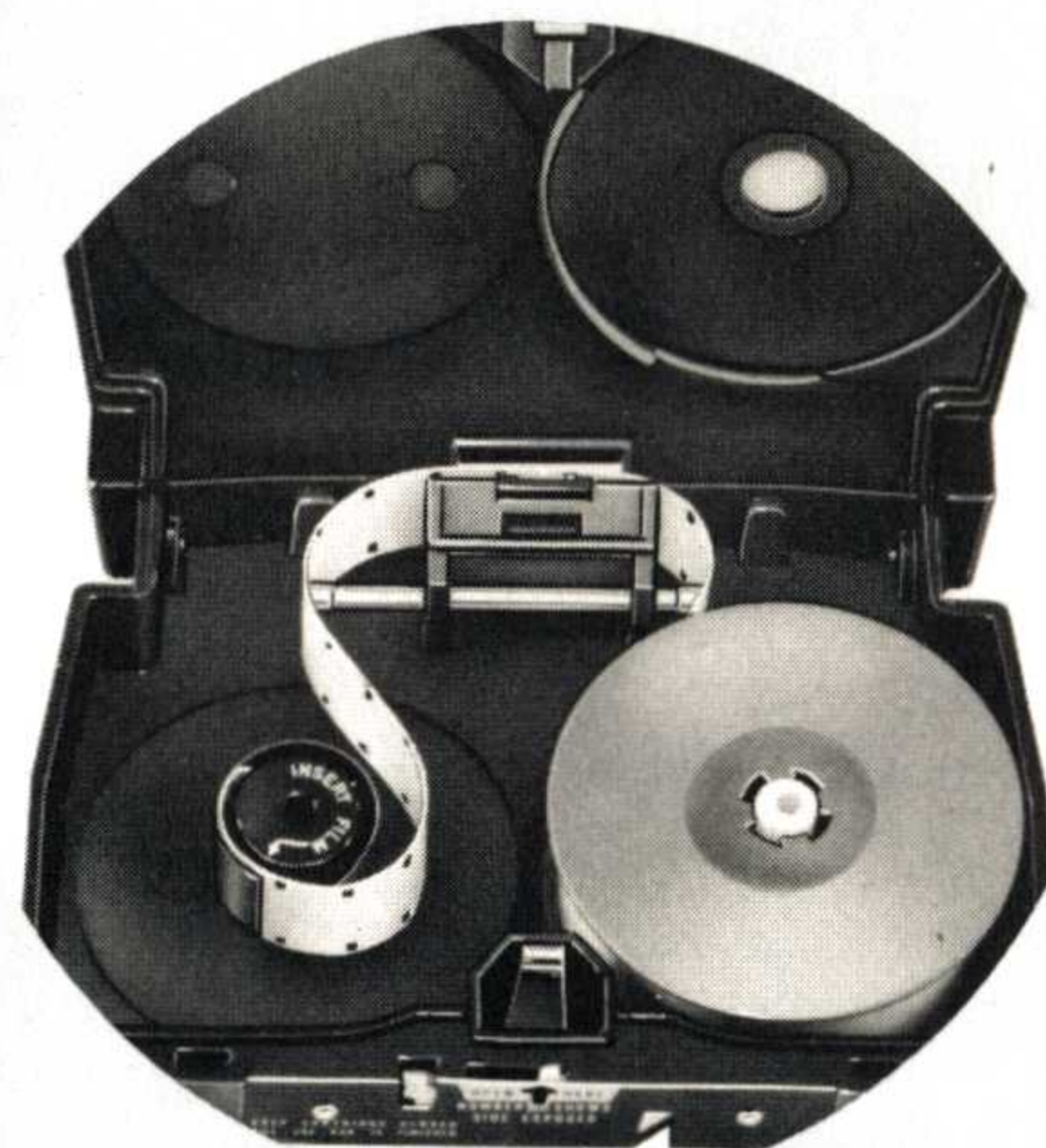


Sight through the viewfinder, compose your subject and press the starting button down. Press down further for "Lock Run" and up for single frame. Pages 4, 5 and 7.



Once you're familiar
with your camera,
use these
easy steps

2. LOAD CARTRIDGE

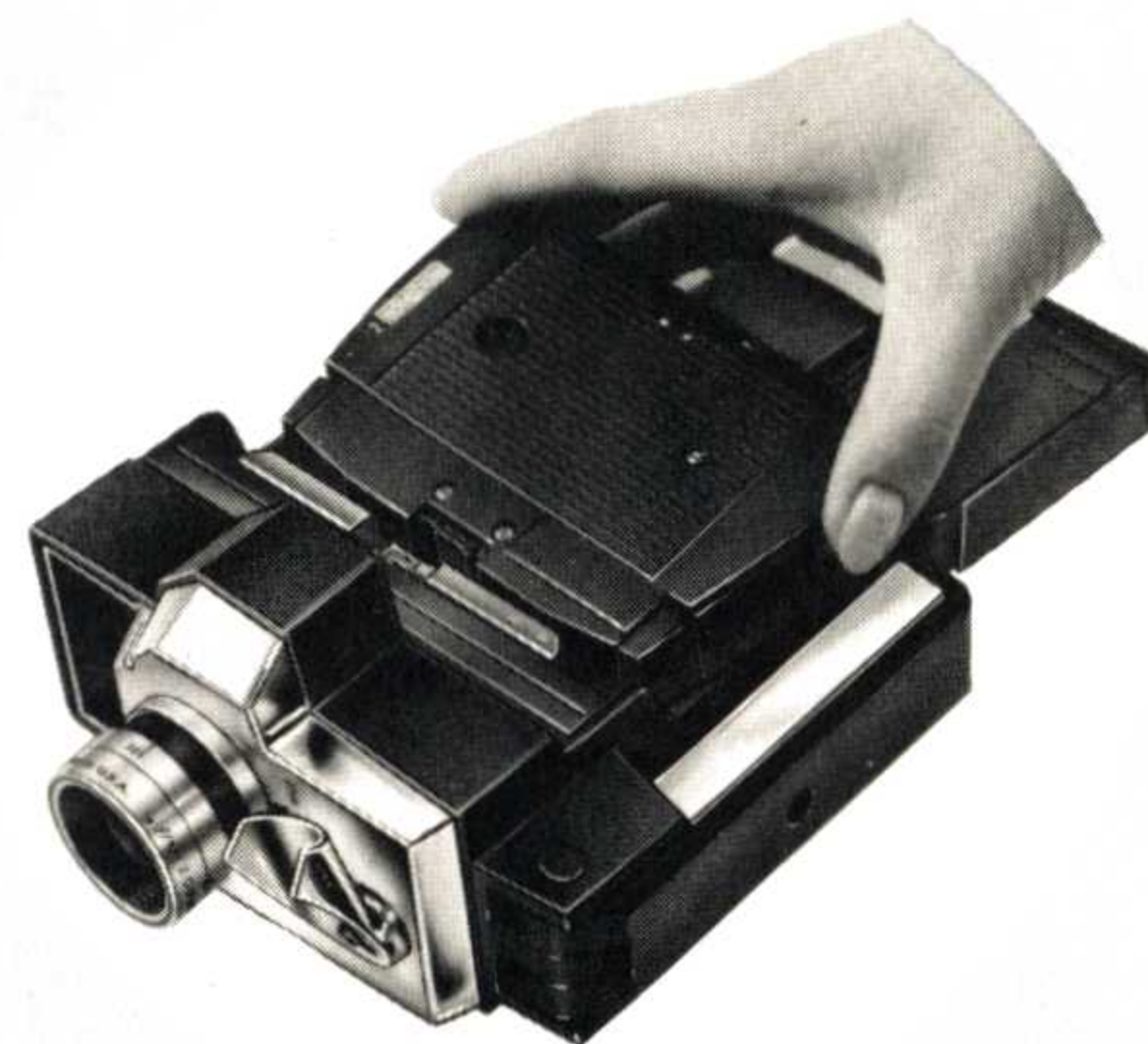


Load a standard 50' roll of 8mm movie film into cartridge. Fill in Film Information Label. Do not open until both sides are exposed. Pages 2, 3 and 9.

1. WIND

Fold the Pistol Grip Handle down. Fold the winding crank down and wind in a clockwise direction until fully wound. Page 2.

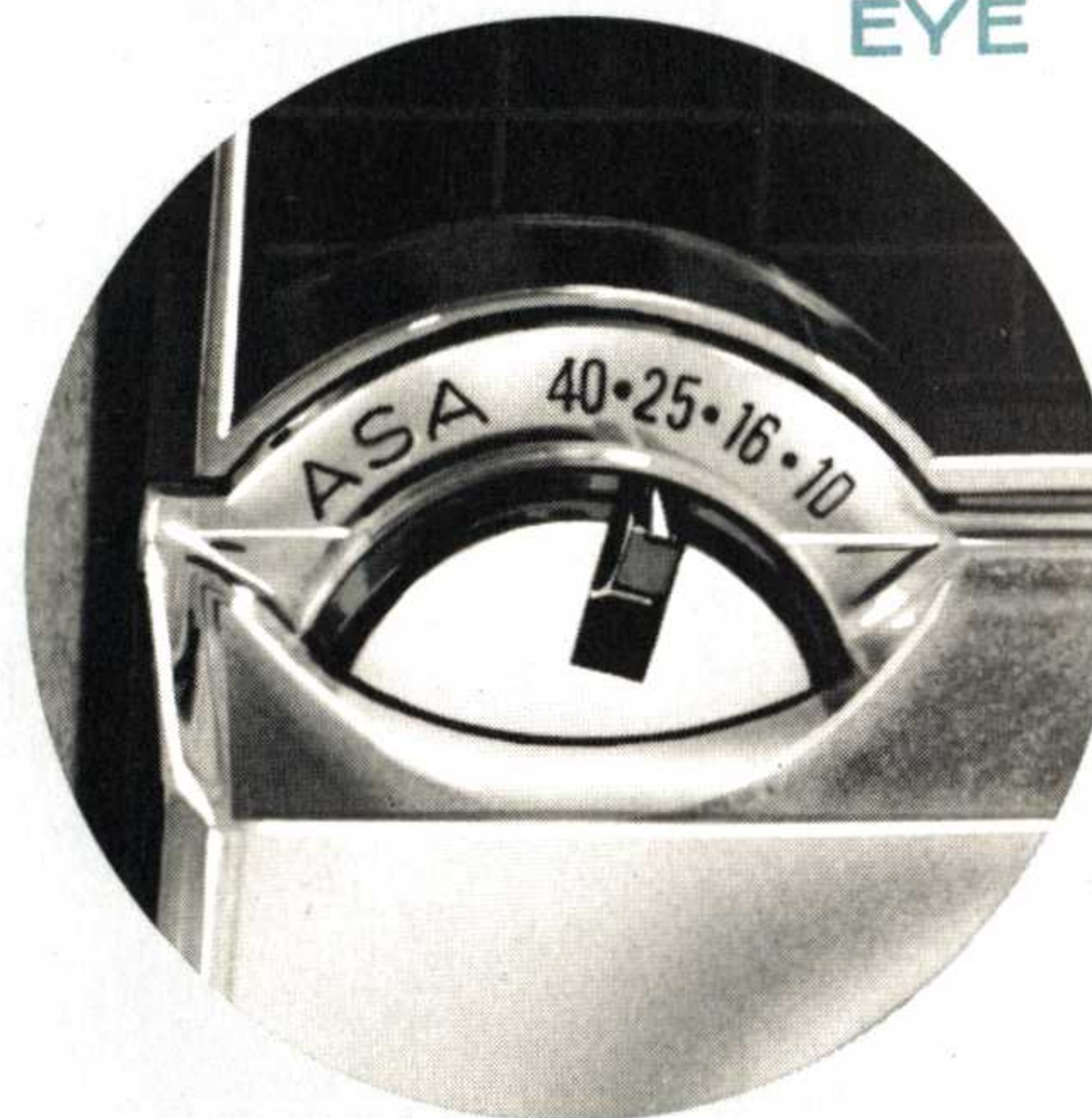
3. LOAD CAMERA



Slip the cartridge into the camera and you're ready to shoot. Film the second half by merely turning the cartridge over. Pages 3 and 8.



4. SET ELECTRIC EYE



Set the A.S.A. Film Speed Dial to correspond with the type of film you are using. Be careful to use proper indoor or outdoor rating. Page 4.

5. SET FILTERS



When using Indoor, "Type A", films with natural, rather than artificial light, set the Filter Lever to "Type A". Use "Haze" all other times. Page 4.

6. FOCUS



Most of your movies will be taken with the lens set at the "Universal Focus Position." However, you should focus the lens for close-ups and critical sharpness. Page 5.

7. SIGHT AND SHOOT



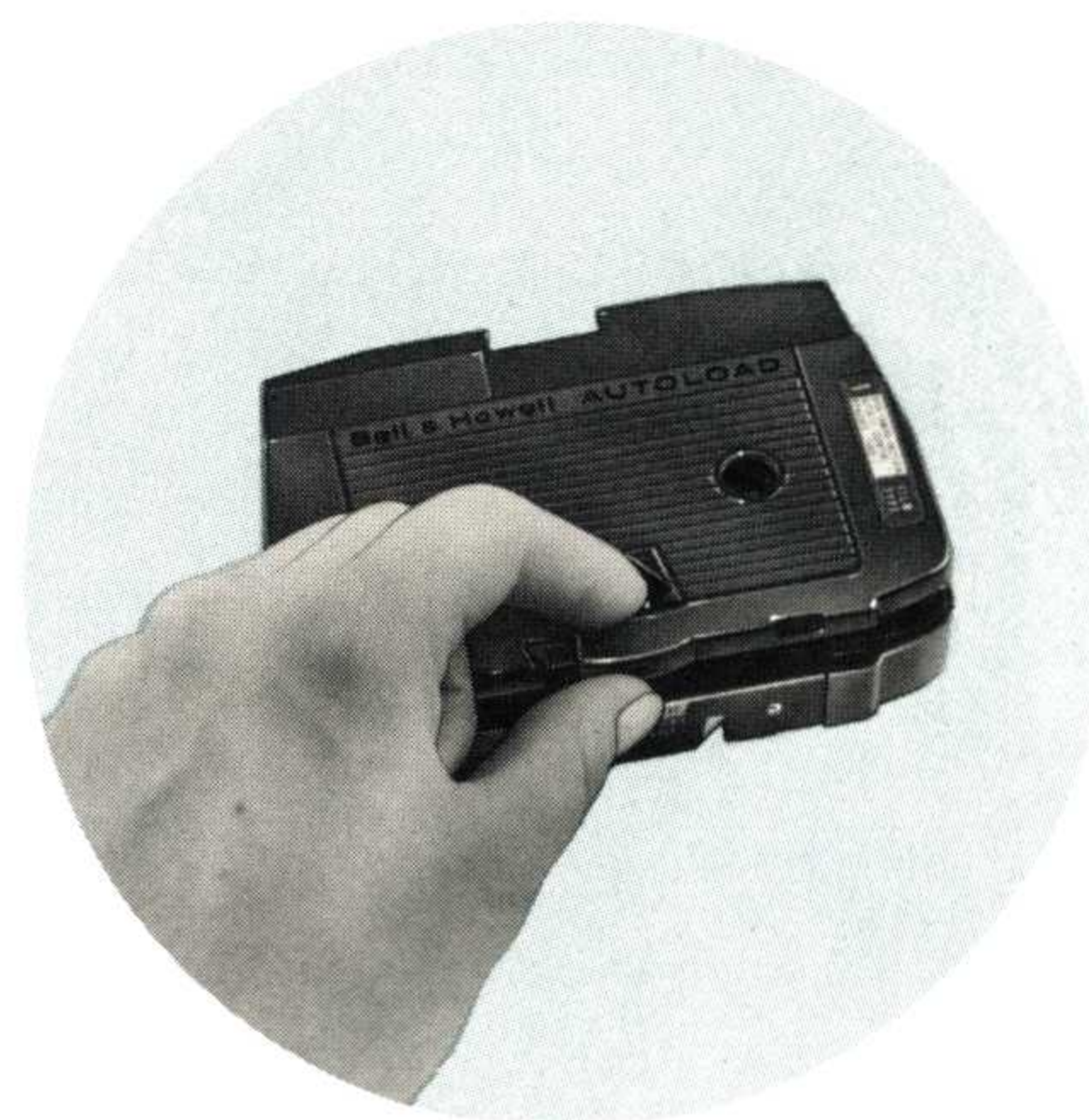
Sight through the viewfinder, compose your subject and press the starting button down. Press down further for "Lock Run" and up for single frame. Pages 4, 5 and 7.

WINDING



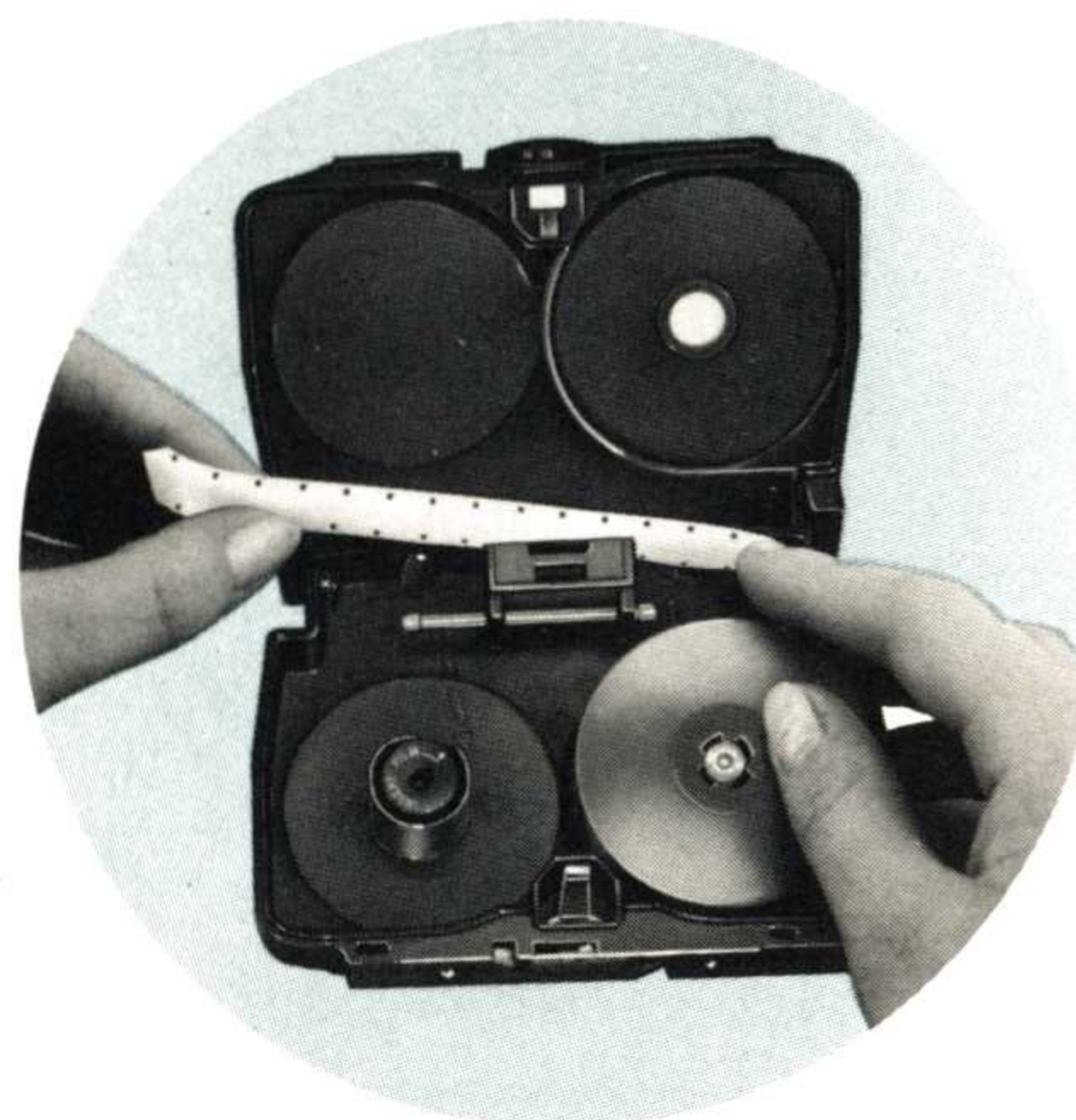
Fold the Pistol Grip Handle down to a comfortable position. Fold the Winding Crank down. Wind in a clockwise direction until the Reserve Power Indicator reads "Full Wind" and is completely "red". (Your camera cannot be overwound.) When you shoot and the red disappears, it's time to wind again. After winding, snap the crank back in place.

REMOVE CARTRIDGE

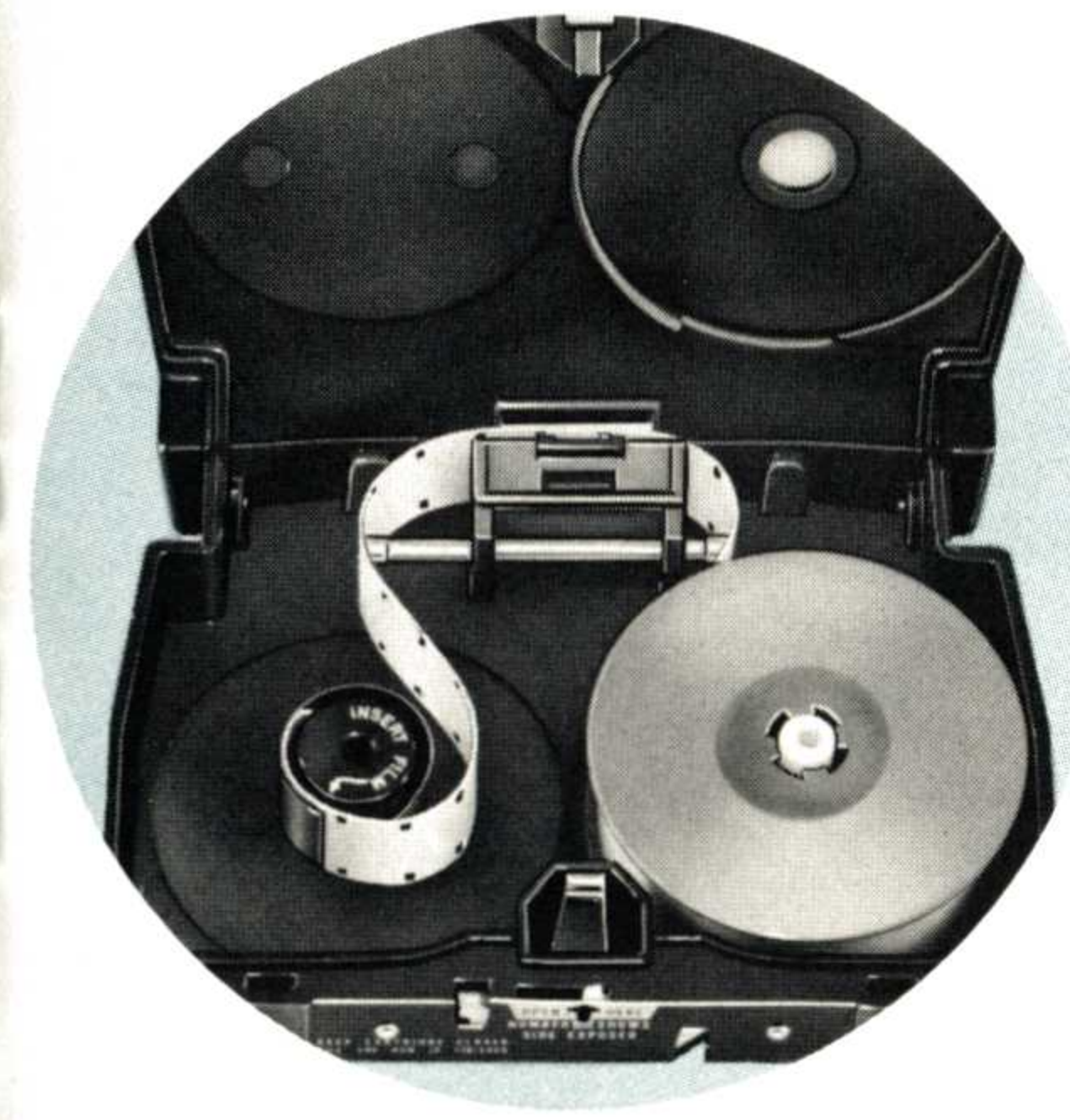


Open the camera door by pushing the latch down. Remove the cartridge. A spring clip keeps the cartridge securely closed. To open, hold the cartridge in the left hand with Side 1 up. With the thumb of the right hand, push the spring to the right. At the same time, use the forefinger in a "pinching" manner to lift the cartridge door as illustrated.

LOADING FILM

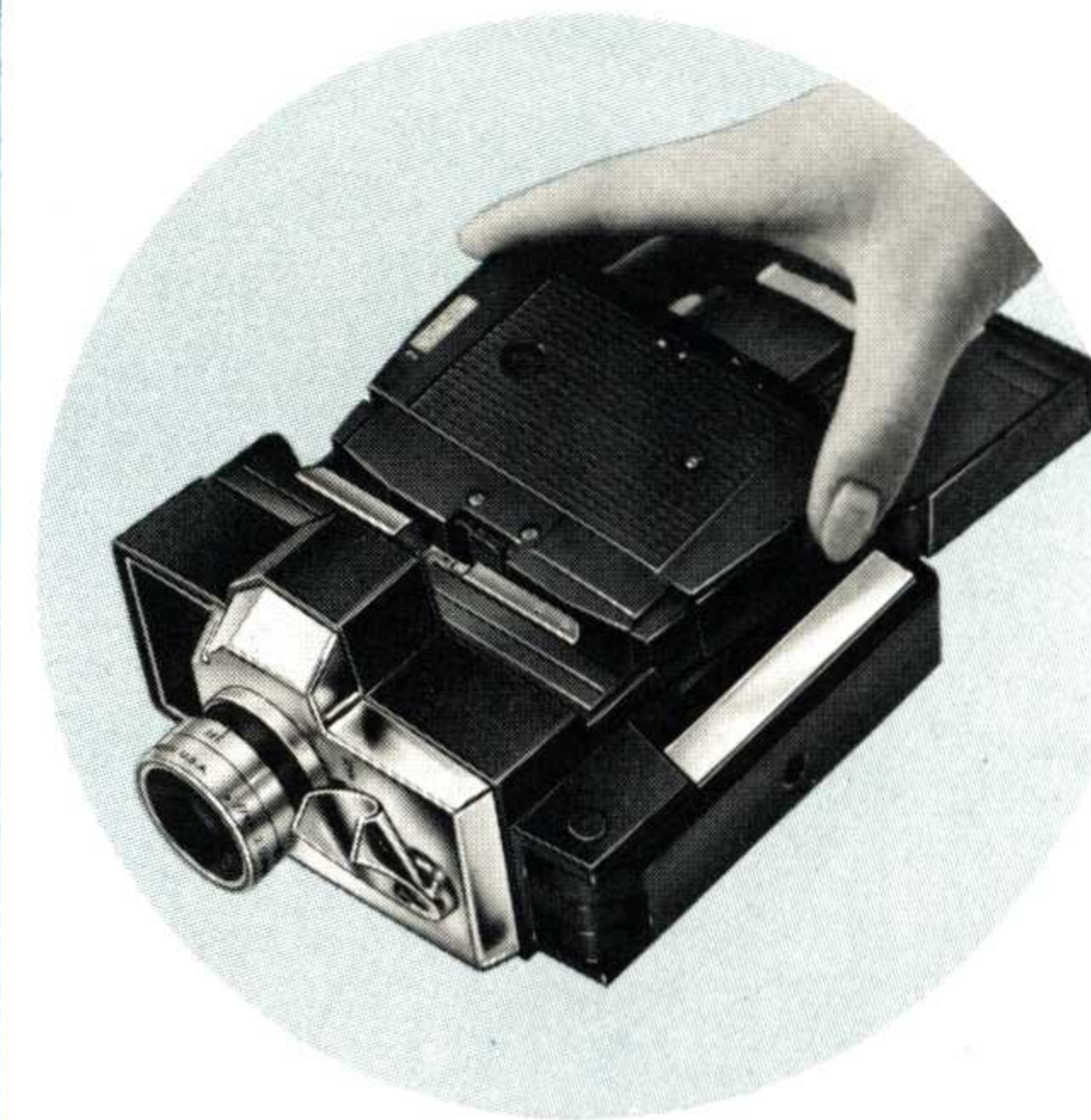


Place the cartridge as illustrated. Avoid bright light, unwind 4" of film keeping it taut on the spool by grasping the film on the spool. Drop the full spool of film onto the white spindle. The side with four notches should be up. Place the film around the white guide bar and then in front of the film pressure plate (light side of film forward).



Continue threading around the other end of the guide bar and insert the film, following the arrow, into the film core. The film, properly inserted in the core, extends about $\frac{1}{16}$ " above the core and is loose around the core. Close the cover, and do not reopen until both sides have been completely exposed. With pencil, write the ASA Speed on the film information labels on both Sides 1 and 2. This is erasable, but can be seen in the camera door window when loaded in the camera.

AUTOMATIC FOOTAGE INDICATOR

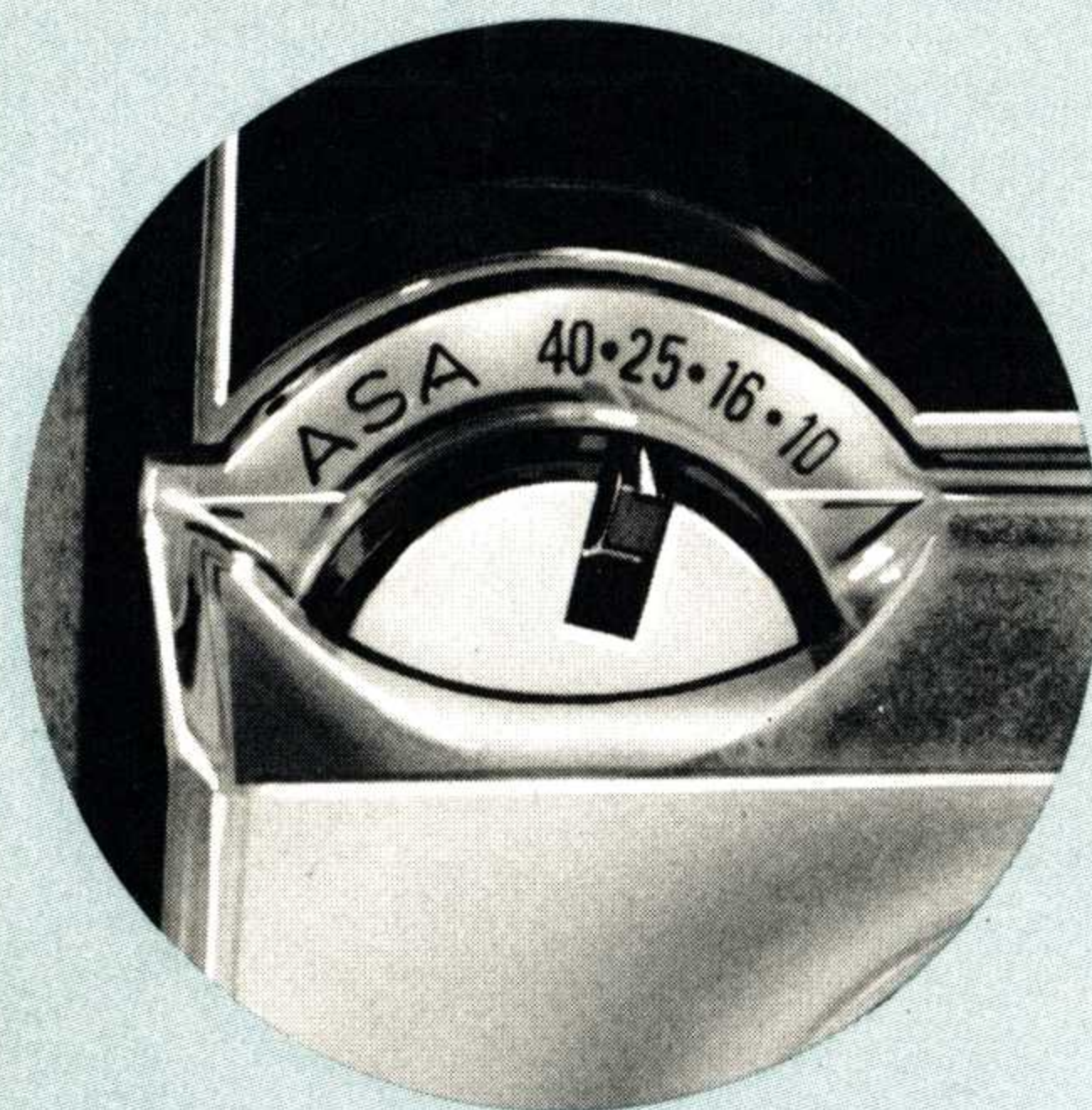


Note that "O" appears in the Cartridge nameplate window. This information is useful for storing loaded cartridges. Insert the cartridge in the camera with Side 1 up. A new safety measure in the Mark II cartridge prevents you from inserting Side 2 first, or from reinserting Side 1 after Side 2 has been exposed. Close camera door and push lock up. Important: Do not reopen camera door until Side 1 has been completely exposed.



The Film Footage Indicator on your Zoom Reflex AUTOLOAD camera is automatically set when you load. Press the starting button down and run the camera until the indicator reads "O". This will run off the protective leader film. *Do not* open camera door again until you are ready to turn the cartridge over.

SET FILM SPEED



Your camera has a graduated scale with film speed settings from 10 to 40. To set the Electric Eye for the correct film speed, turn the dial until the white indicator line points to the correct speed. The dots between the numbers represent film speeds of ASA 12, 20 and 32. Click stops are provided at each number and dot. You will find recommended film speed on the instruction sheet packaged with the film. Be sure to set the Electric Eye for the correct indoor or outdoor rating, as these are different on most films.

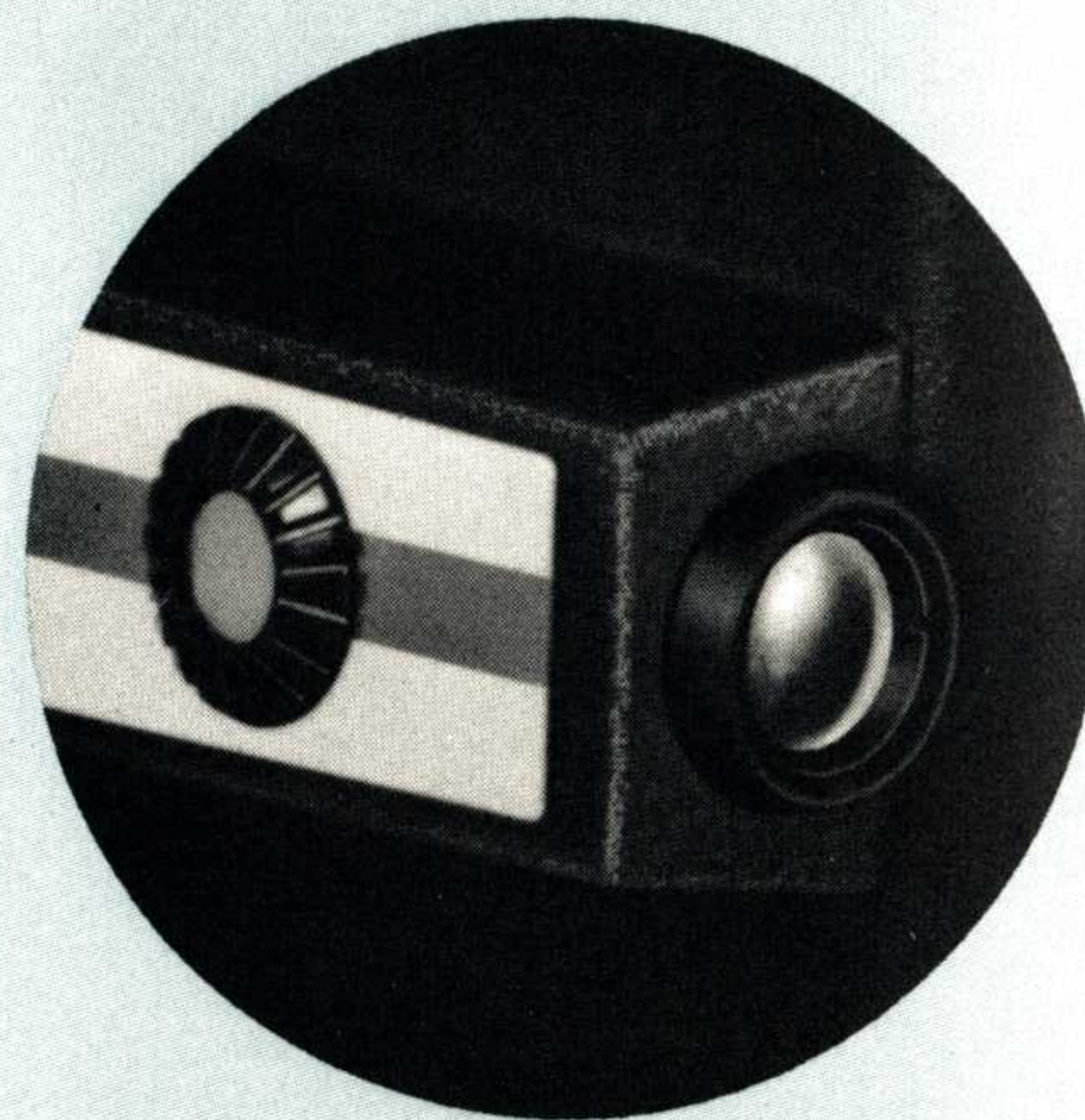
BUILT-IN FILTERS



Your camera provides both "Haze" and "Type-A" filtering. Set the Filter Lever to the "Haze" position which you'll use most of the time, whether you're filming indoors or out.

TYPE-A FILTERS—For convenience, you may occasionally want to use indoor film outdoors. To do this, set the Filter Lever to the "Type-A" position and change the film speed setting. Remember to reset your camera when you move back indoors to the setting shown in the film manufacturers instructions. Also return the filter to the "Haze" position.

VIEWFINDER EYEPIECE



The Viewfinder Eyepiece is adjustable to suit your individual requirements. To properly adjust the focus, follow these simple steps: 1) Sight through the viewfinder at a specific subject with the lens at full telephoto; 2) Set the footage scale on the lens to correct distance between the camera and subject as described on Page 5; 3) Rotate the Focusing Eyepiece Adjustment Dial until the subject appears sharp. Your viewfinder is now adjusted to your eyesight and will provide sharp viewing at any distance or lens position.

VIEWFINDER EXPOSURE INDICATOR



Place your hand in front of the Electric Eye and look through the viewfinder. When there is not sufficient light to take properly exposed movies, the exposure indicator needle will appear in the viewfinder. Point the camera at a bright subject and remove your hand from the Electric Eye. The needle disappears when there is adequate light to take movies.

ZOOM LENS AND VIEWFINDER



Creating dramatic zoom effects with your "Autoload" Zoom Reflex camera is as easy as pointing your finger. All you do is sight through the viewfinder and move the Finger Control Zoom Lever up or down while filming. Moving the Lever up will give you the feeling that you are moving farther away from your subject. Moving the Lever down brings you closer. For best results, see tips on zooming—Page 11.

UNIVERSAL FOCUS POSITION AND FOCUSING



The Universal Focus Position is the black dot between 15' and 25' on the Focusing Ring. Align this with the White Footage Index Mark. This is the setting you will probably use most of the time. When shooting outdoors on a sunny or slightly overcast day, this setting gives a maximum focus range in front of and behind your subject. When shooting indoors or close-ups, or when the lens is set at telephoto, turn the focusing ring until the correct distance from camera to subject is opposite the Footage Index Mark.

WIDE ANGLE—NORMAL—TELEPHOTO MOVIES

There are two ways in which you can take specific wide angle, normal, or telephoto movies with your Zoom Reflex AUTOLOAD camera:

1. Sight through the viewfinder and turn the zoom lens until you frame the exact size picture you want to record on your film. The coverage at various settings is illustrated below.

2. Turn the zoom lens as you are filming to create the impression that you are moving closer or further from your subject. Hold the camera steady and zoom slowly.

WIDE ANGLE



Use this position for filming indoors in close quarters, where you want to include more in your picture. This position is also desirable for outdoor scenic shoots.

NORMAL



This is the lens position you'll probably use most of the time. Follow the action of your vacations and holidays, sports, hobbies and special events.

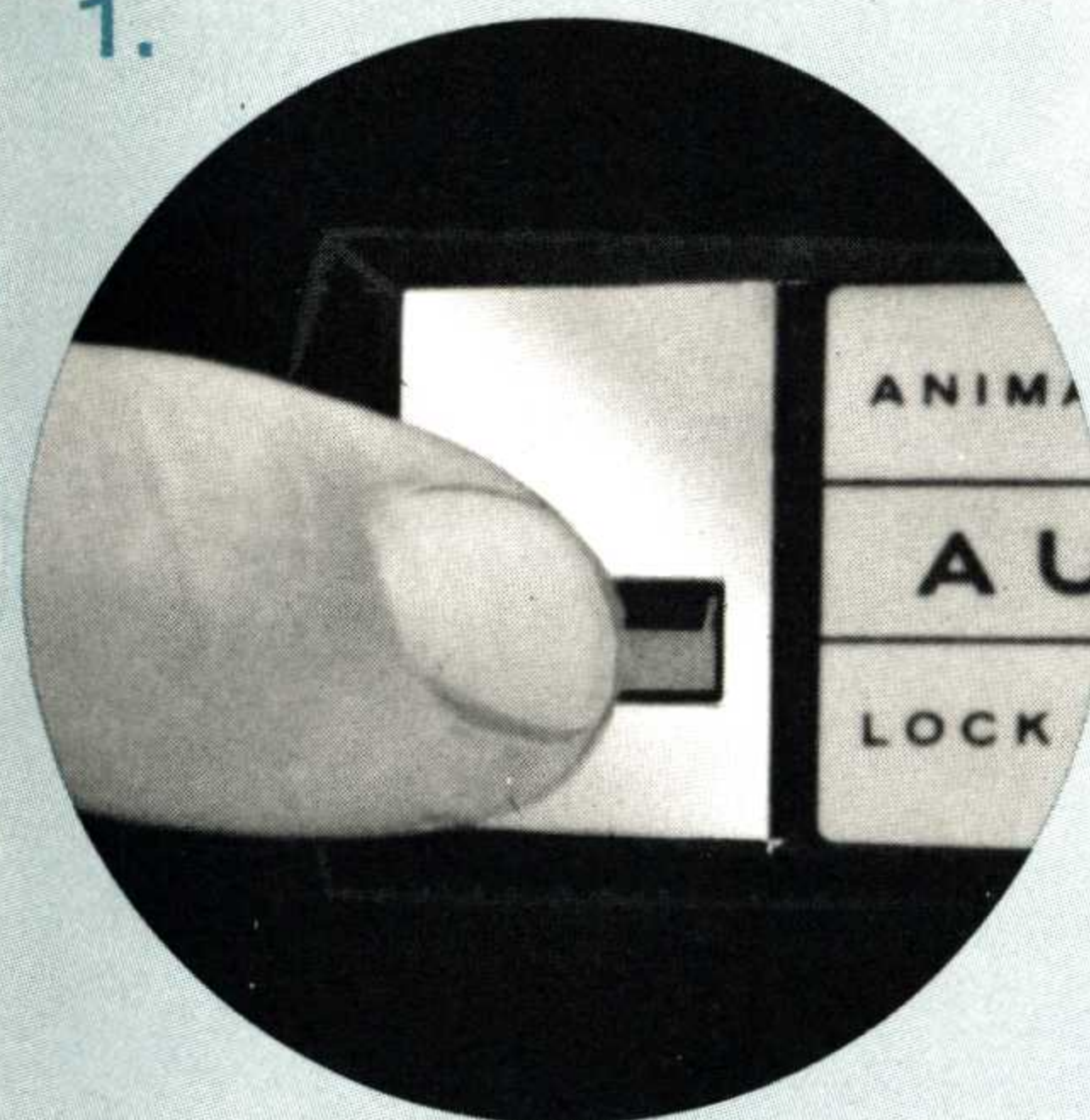
TELEPHOTO



This position will magnify your subject, making it extremely useful when you want to film close-ups from a distance, candids, and enlarged views of distant objects.

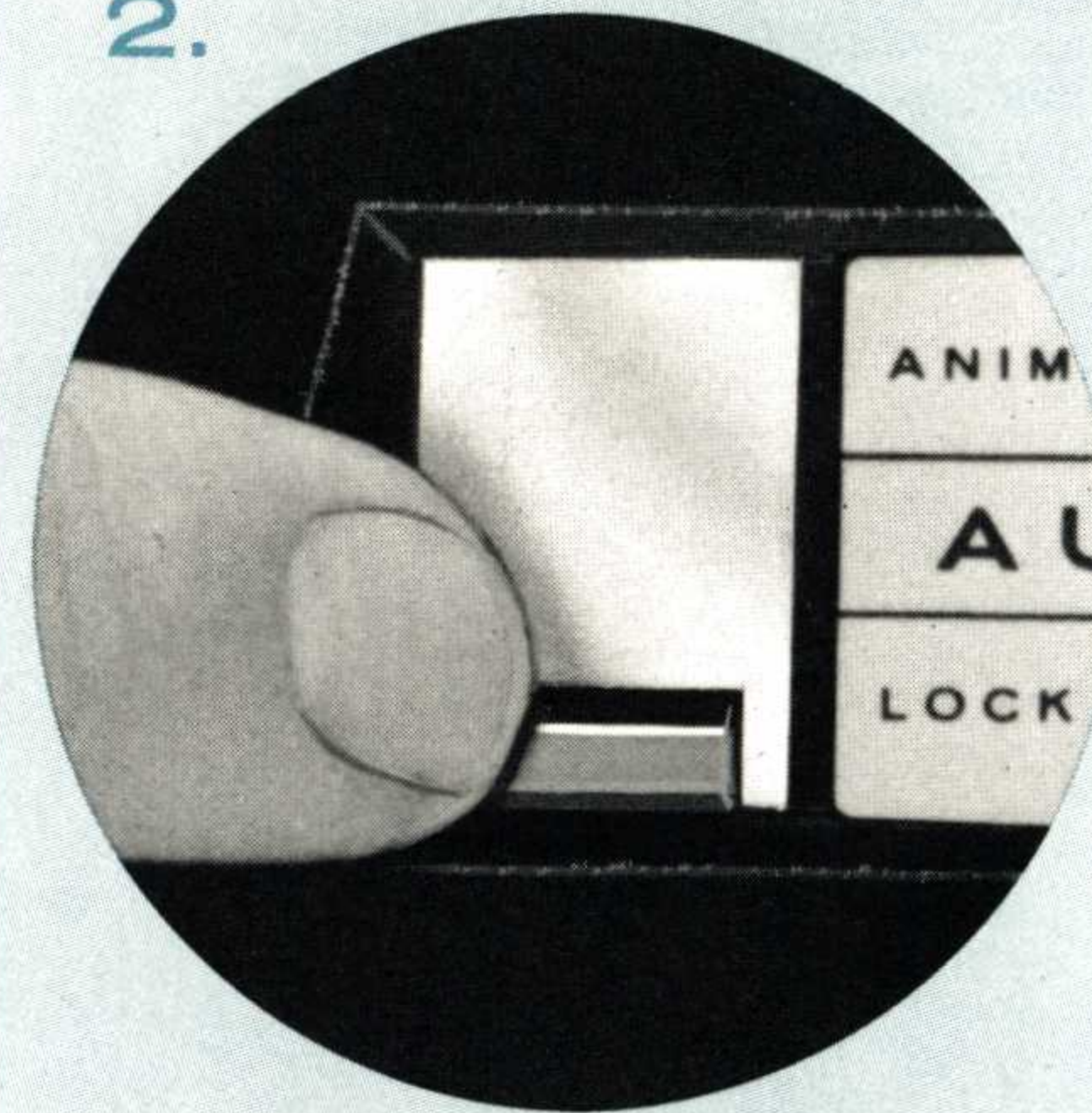
3-WAY STARTING BUTTON

1.



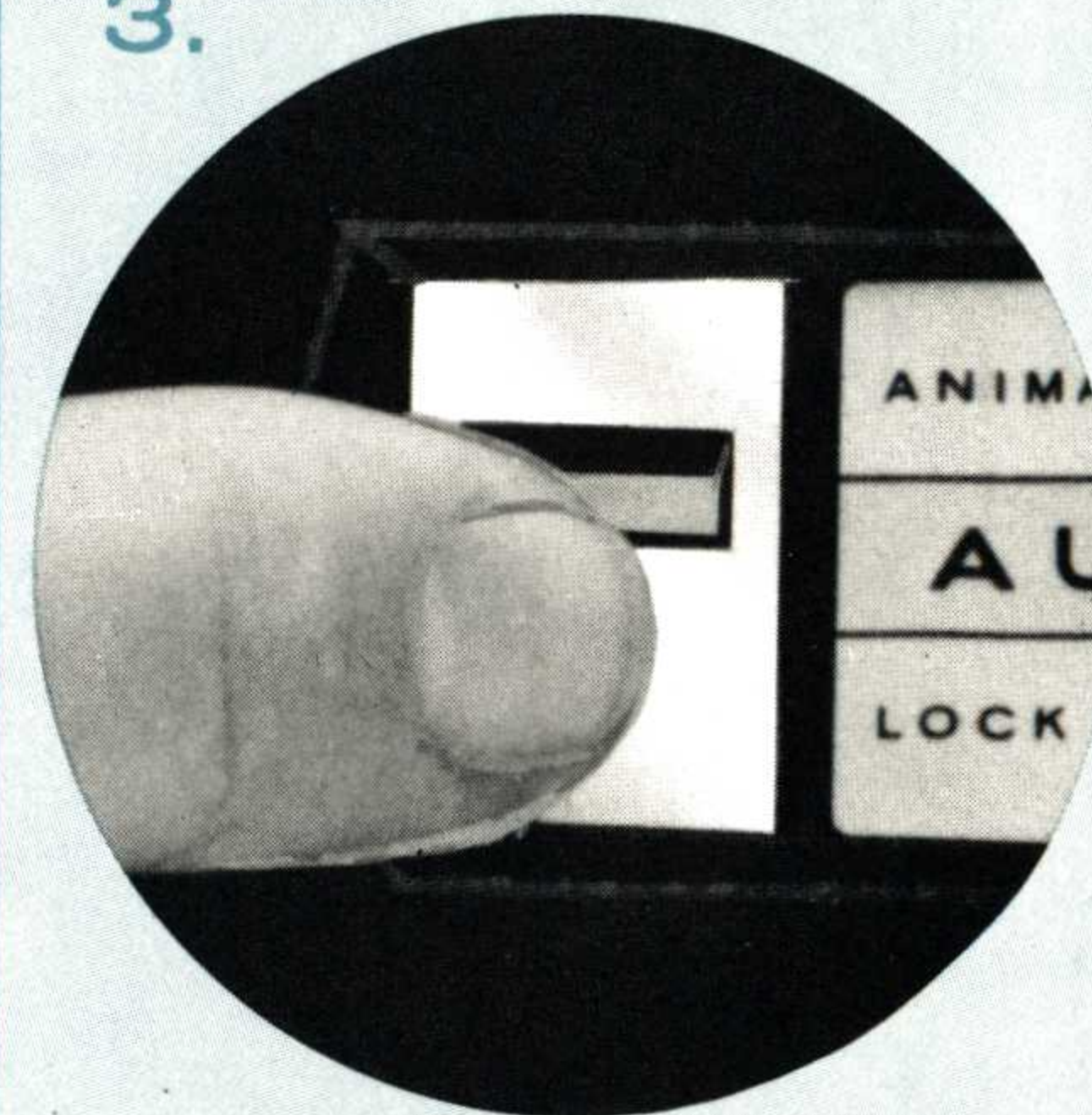
Press downward slightly on the starting button and film moves through the camera. If your camera has been fully wound, you can expose 15 feet of film, enough for 8 or 9 average length scenes. Your Az-zom Reflex AUTOLOAD camera is factory set to run at a steady, governor controlled speed to prevent any slow down at the end of the film run.

2.



Press all the way down and you lock the starting button in its continuous run position. This lets you get into your movies. Place the camera on a tripod or steady support whenever you want to step into the picture. To release the continuous run lock, merely push up on the starting button.

3.



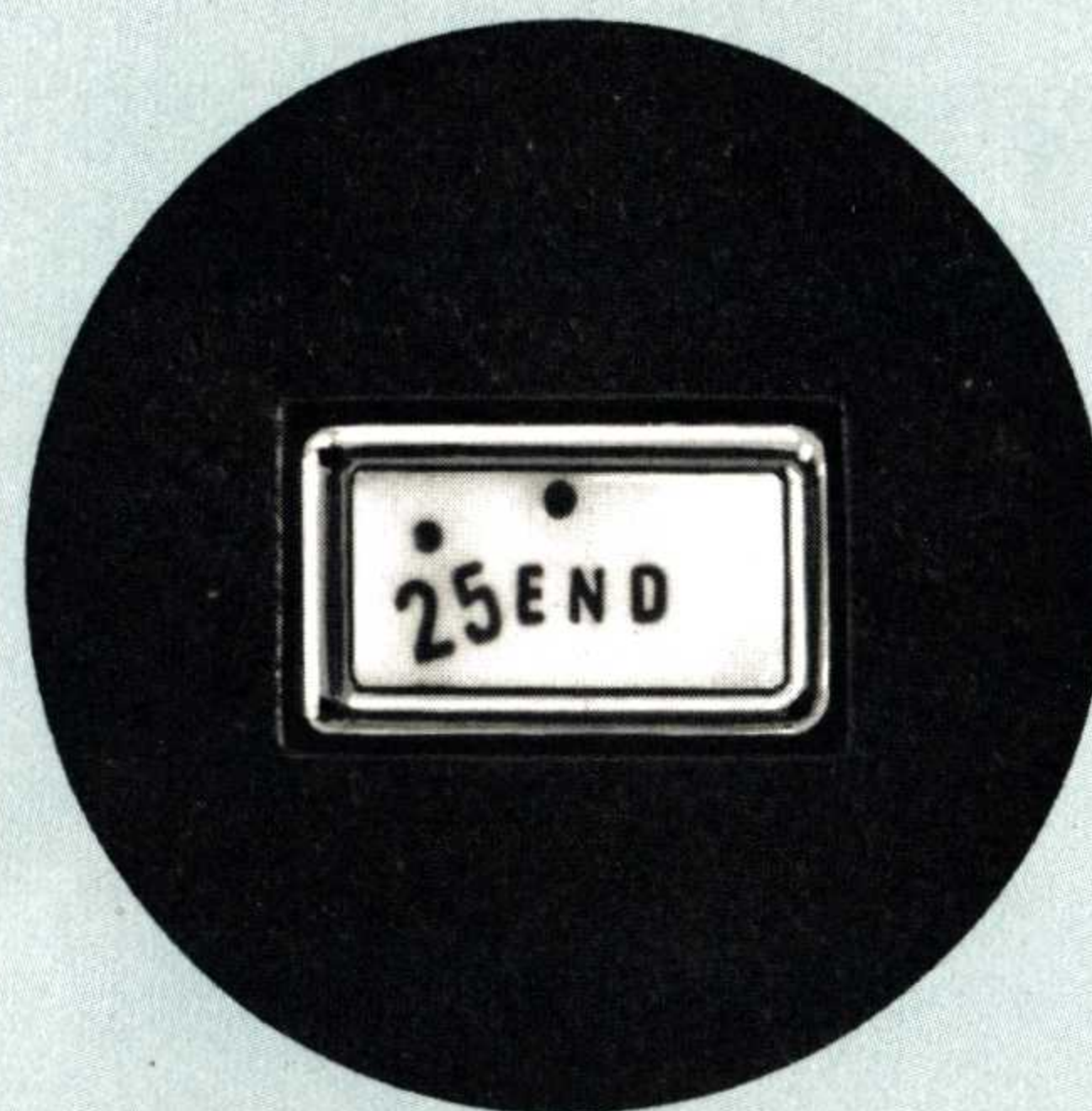
Press upward and a single frame is exposed. A number of single frame shots is necessary to make an adequate animation scene. An animation scene can give you unusual effects: For example, if you move a toy very slightly between each frame, it will appear to move when you project the scene. Similarly you can shoot tricky titles or the beauty of a sunset. You'll want to use a tripod here.

TOP STARTING BUTTON



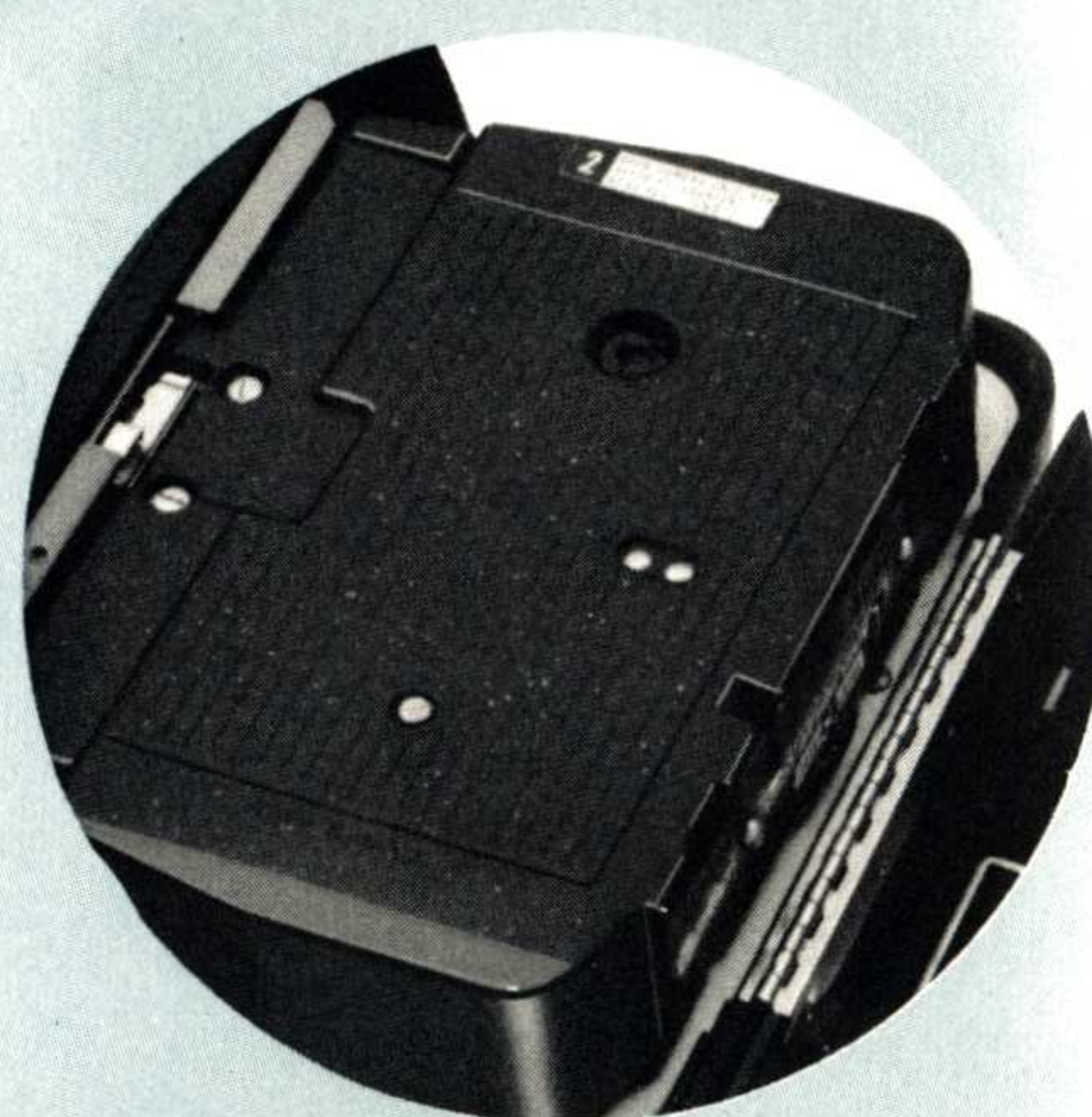
When using the camera with the pistol grip folded down, you will find the top starting button more convenient than the three way button. Holding the camera as illustrated, press the starting button down with one of the fingers of the left hand to start filming. For animation and continuous run filming, fold the pistol grip handle up, place the camera on a tripod and use the three way starting button.

UNLOADING



After you have exposed the first 25 feet of film as shown on the Footage Counter, wind the camera, and run until it stops. The automatic stop in the cartridge will stop the camera with the Footage Counter at "End". Open the camera door and remove the cartridge. Absolutely, do not open the cartridge. Note that "1" appears in the Side Exposed Window.

USING SECOND HALF OF FILM



To run the second 25 feet of film, merely turn the cartridge over and insert in the camera with Side 2 up. Repeat the instructions for Side 1. Do not open the camera door until Side 2 is completely exposed. After you have exposed Side 2 and run the camera until it has stopped on "End," remove the cartridge. The number "2" appears in the Side Exposed Window, indicating that both sides have been exposed and the film is ready for processing. Remove the film from the cartridge. The cartridge should not have been opened prior to this time.

KEEP YOUR CAMERA CLEAN



Whenever necessary wipe off the lens, viewfinder and film channel with a piece of lens tissue moistened with Opti-Kleen. Use a toothpick to dislodge any hardened emulsion or dirt that might accumulate in the film channel. A soft brush is useful in removing any dust on the electric eye grid. Never use sharp tools on your camera.

FILM COMMENTS

Eight mm movies are actually taken on movie film that is 16mm wide, and 25' long (useable footage). This film is then slit in processing and spliced end for end to give you a 50' roll of movies. To conform with ASA standards, "leader" and "trailer" footage is also provided. Part of this leader is used in the developing process, cut off and discarded.

Because of the design of the cartridge, some of this leader film can now be used. Thus you can actually start shooting scenes before the Footage Indicator reads "0" and after it reads "25". However, do not take highly valued scenes on this portion as film processors cut off different amounts of leader in the developing process. It is necessary for proper operation of your camera that the film you purchase conforms to these ASA standards for length.

It is also important that the film you purchase is actually tucked in to the slot on the supply spool. Film that is merely wrapped around the spool, or cinched, will not take up properly on the second half of the film.

EXPOSURE DATA

Starting Button Position	Camera Speed	Shutter Speed
Run	16 Frames Per Second	1/35 Second
Animation	Single Frame	1/35 Second

DEPTH OF FIELD WITH YOUR ZOOM LENS

WHAT IS "DEPTH OF FIELD?" . . . It is usually referred to as that area in front of and behind the subject that appears acceptably sharp and clear. Objects in front of or behind the "Depth of Field" or "Depth of Sharp Focus" tend to become blurry.

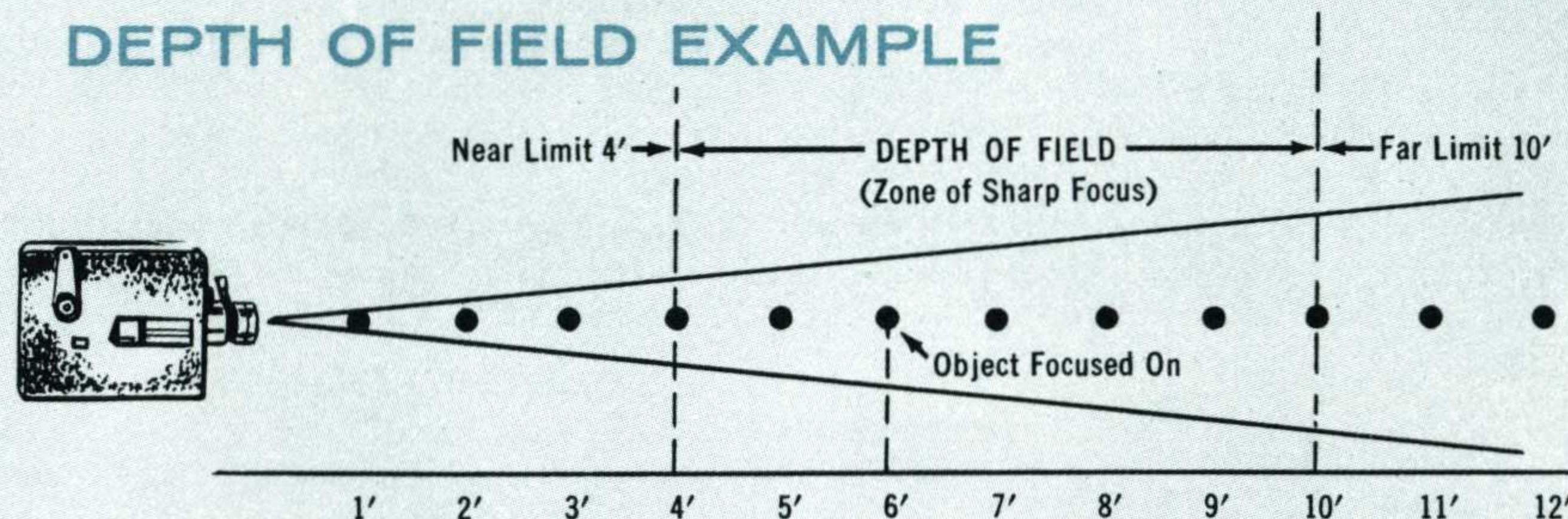
WHAT DETERMINES THE DEPTH OF FIELD? . . . The Depth of Field is affected by:

1. The Zoom position of the lens.
2. The distance at which the Focusing Ring is set (distance from camera to subject).
3. The light condition.

In general, the more Wide Angle position of the Zoom Lens, the further distances from camera to subject, and the brighter light conditions all produce a larger Depth of Field.

DEPTH OF FIELD EXAMPLE

1. Zoom Lens set at TELE.
2. Sunny light condition



DEPTH OF FIELD AT MAXIMUM TELEPHOTO SETTING

LIGHT CONDITION

Lens Focus Setting	Indoor Movies with Artificial light or very cloudy day	Cloudy	Sunny	Very Bright (Snow-Sand)
3 feet	2'11"- 3'1"	2'9"- 3'3"	2'7"- 3'7"	2'3"- 4'4"
6 feet	5'6" - 6'6"	5' - 7'6"	4' -10'	3' -26'
10 feet	9' -12'	7'6"-15'	6' -27'	4' -inf.
20 feet	15' -28'	12' -55'	9' -inf.	6' -inf.

CARE OF YOUR CAMERA

Your camera has been factory lubricated and is guaranteed to be free from imperfection for one year from date of purchase. To keep your camera in top operating condition, we

recommend that you bring your camera to Bell & Howell, or one of the Bell & Howell Approved Service Stations periodically for cleaning and lubrication.

TIPS ON ZOOMING

1. For wide angle and normal movies, your camera can be held in the hand. For telephoto shots, or zoom movies, a steady support; even a camera tripod is recommended. This, incidentally, is a good practice for all movie making.
2. Don't zoom too much. Like any good technique, it will be most effective when used sparingly.
3. When using various lens positions, consult the depth of field table. Note: The Depth of Field decreases as you zoom to the telephoto position. Therefore, it is best to start your zoom effect with the lens set at the wide angle position.
4. When you use a specific distance setting on your lens, it is not necessary to change this setting when you zoom. However, if you switch to a new subject at a different distance, the scale must be set for the new distance.
5. Zoom evenly. A slow even turning of the zoom handle produces a much more pleasing effect on the screen than a fast, uneven motion. Regulate the speed of the zoom according to the desired effect. Also, a full zoom is not always necessary. Some scenes will look better if the zoom is only partially completed.

SHOOTING TITLES AND CLOSE-UPS

Reflex viewing on your AUTOLOAD Zoom Reflex makes close-up work very convenient since there is no parallax problem. You see exactly what the lens sees. Keeping the

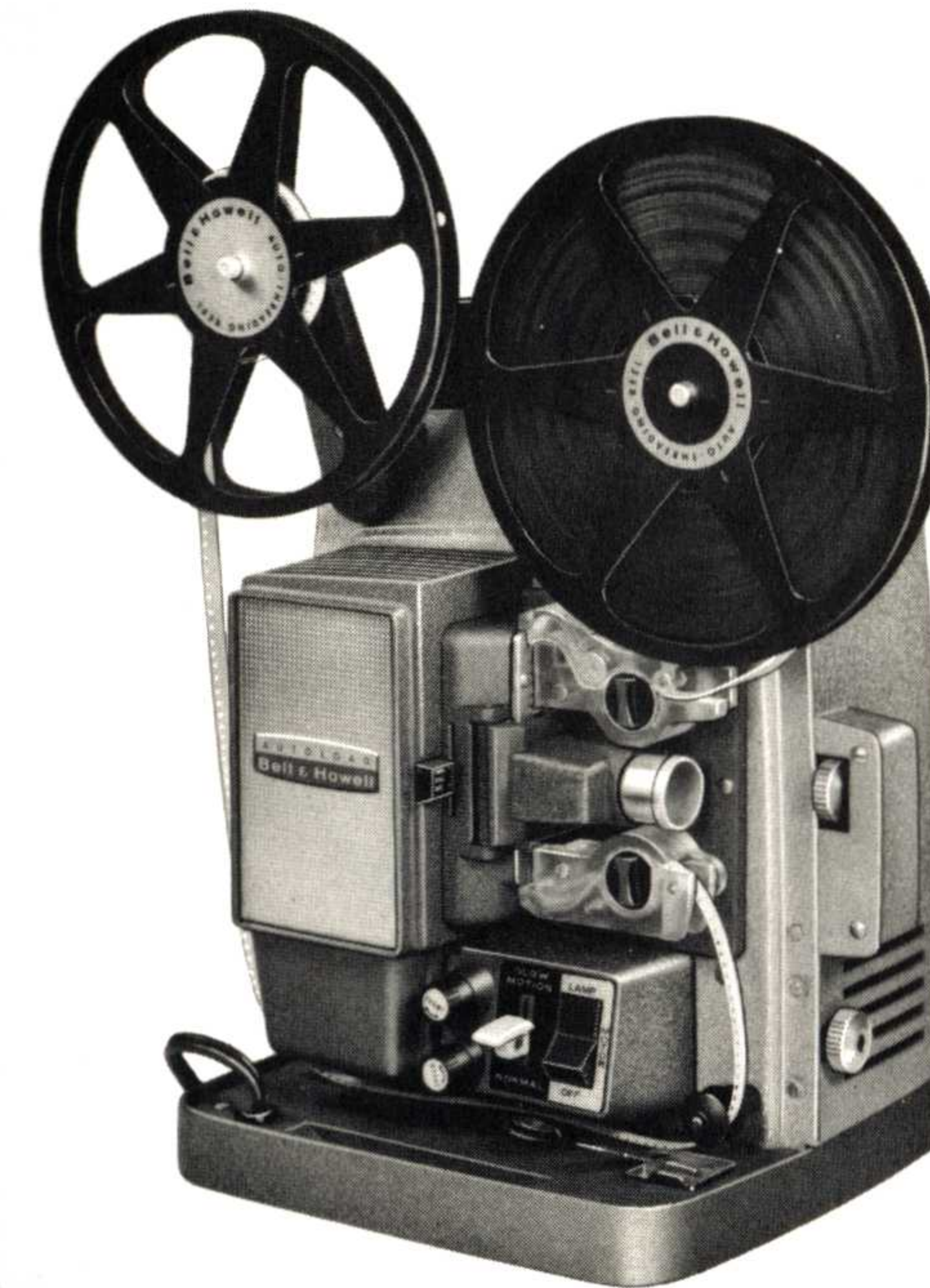
camera steady by use of a tripod and close attention to the "Depth of Field" table will produce sharp, clear titles that will add interest and excitement to your movies.

TIPS ON MOVIE MAKING

1. If your fingers block the Electric Eye when you shoot (it's easy to make this mistake when zooming) your camera will not "see" things in their proper light. Don't confuse your camera. Make sure it sees everything.
2. As you probably already know, the first principle of good photography is—"keep the sun over your shoulder"—unless you are shooting for special effects. Direct light from the sun can cause unpleasant glare.
3. When shooting close-ups at a distance of 6 feet, the range of sharpness is greatly reduced with any lens. At this distance, you will want to use your distance scale, especially when shooting in telephoto position. As shown in the depth of field illustration on page 10 your background will not be as sharp as your subject. For this reason, the best closeups are obtained with a plain background (such as open sky, sand, water), which does not detract from the subject.

Before you take movies of that special occasion, take a roll of practice film with your AUTOLOAD Zoom Reflex camera. This will give you an opportunity to familiarize yourself with camera operation and a chance to check your results. Listed below are a number of tips and suggestions for better movies with your camera.

4. When you shoot indoors with a lightbar, there are several things you should remember: (a) Make sure your camera is loaded with indoor film and set at proper film speed. (b) Always keep your subject further from the camera than it is from the background. This will give you good over-all exposure as your subject and background will be lighted at approximately the same level. When taking indoor movies, the exposure needle will frequently show, indicating insufficient light. However, if your subject is within 10 feet to 12 feet of your camera and light source, your movies will be correctly exposed.
5. When it is necessary to "pan"—that is to revolve the camera horizontally while the scene is being shot, there are several things you should remember: (a) When panning to follow a moving subject, keep it centered in the viewfinder. (b) As a rule, you'll get best results if you pan from left to right. (c) Never pan on close-ups—you'll get a blur. (d) Pan only when absolutely necessary; hold camera steadily.



FIRST...FROM Bell & Howell

The world's first slow motion automatic threading movie projector. Bring the magic of slow motion to your screen with any of your present films. The touch of a switch slows your film to just a hint of movement ... without the slightest flicker. To review a scene, instant reverse at normal speed is at your finger-tips. Plus, instant return to forward slow-motion. And, only from Bell & Howell, slow motion with the complete convenience of three second automatic threading.

Any additional questions you have on movie making can be answered by your Bell & Howell dealer. He is an expert in photography.

Bell & Howell

GUARANTEE

*Indoor ASA - 40 - Hoya
outside ASA - 25 - Type A*

This new Bell & Howell product is guaranteed to be free from imperfections in both material and workmanship for one year from date of original purchase. Should any part of this equipment be defective, it will be replaced or repaired free of charge (except for transportation), providing the equipment has been operated according to the instructions accompanying it.

No liability is assumed for film which is damaged or is unsatisfactory for any reason and no liability is assumed for interruptions in operation of equipment. This guarantee is void:

- a) If equipment has been damaged by accident or mishandling;
- b) If equipment has been serviced by other than Bell & Howell approved service stations*;
- c) If adaptations or accessories other than Bell & Howell have been made or attached.

The foregoing is in lieu of all other warranties expressed or implied and Bell & Howell Company neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with this product.

**Location of nearest approved service station will be furnished on request.*

Your camera Serial Number is located on the inside instruction plate.

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7100 McCormick Road
Chicago 45, Illinois

Bell & Howell®

ZOOM REFLEX

AUTOLOAD™

8mm

MOVIE

CAMERA

MODEL 315 PZ



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outdoor ASA - 25 - Type A

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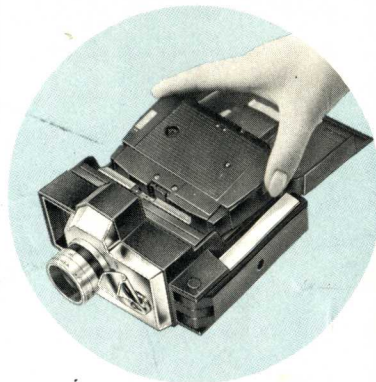
INSTRUCTIONS FOR NEW MARK II AUTOLOAD[®] CARTRIDGE

OPEN AND LOAD CARTRIDGE



A spring clip keeps the cartridge securely closed. To open, hold the cartridge with side 1 up. With your thumb, push the spring to the right. At the same time, use the forefinger in a "pinching" manner to lift the cartridge door. There is no difference in film loading with the new Mark II Cartridge.

LOAD CAMERA



Insert the cartridge in the camera with Side 1 up. A new safety measure in the Mark II cartridge prevents you from inserting Side 2 first, or from reinserting Side 1 after Side 2 has been exposed. Do not use force in attempting to insert the Cartridge. Close camera door and push lock up.

BELL & HOWELL SERVICE

The new Bell & Howell product that you have purchased will give you many years of enjoyment. Should Guarantee Service be needed, or for periodic servicing, Bell & Howell has complete Factory Service Centers and Factory Approved Field Service Stations throughout the world to serve you.

BELL & HOWELL FACTORY SERVICE CENTERS

CHICAGO

Bell & Howell Company
General Service Dept.
7125 North Kimball Ave.
Chicago 45, Illinois

NEW YORK

Bell & Howell Company
General Service Dept.
37-15 61st Street
Woodside L.I., New York

GLENDALE

Bell & Howell Company
General Service Dept.
623 Rodier Drive
Glendale 1, California

For the address of the Bell & Howell Factory Approved Field Service Station nearest you, write to:

Bell & Howell Photo Sales Co.
Customer Relations Department
7100 McCormick Road
Chicago 45, Illinois

For Service outside the United States, contact

Bell & Howell Company
International Division
7100 McCormick Road
Chicago 45, Illinois

IMPORTANT RECORD -- KEEP THIS CARD

Fill in the information on this card and file it with your other valuable papers. Properly filled out, this card contains information you will need should your equipment be damaged, lost or stolen.

TYPE OF EQUIPMENT 315 PZ Zoom Bell & Howell.

MODEL NO. _____ SERIAL NO. BG 94716

PURCHASED FROM XOHO PHOTO DATE 4-2-64

ADDRESS 234 W 1st St CITY Duluth STATE Minnesota

LENS INFORMATION

1. _____ Serial No. _____

2. _____ Serial No. _____

3. _____ Serial No. _____